and treat diseases involving the improper production of or response to IL-1, a cytokine (page 5, lines 33-35). Peptides which bind to IL-1R but did not block the IL-1α binding site on the receptor are disclosed at pages 11-16, and peptides which bind to IL-1R and block IL-1α binding site on the receptor are disclosed at pages 16-22. Preferred motifs for those peptides are described at pages 22-35.

Yanofsky et al. do not disclose an isolated and purified peptide of a chemokine, a variant, or a derivative thereof, comprising no more than 30 amino acid residues, wherein the peptide comprises residues X_1-Asp-Pro-X_2-X_3-X_4-Trp-X_5-Gln or consists of X_2-X_3-X_4 or Trp-X_5-Gln, wherein X_1 is Ala or Leu, X_2 is Lys, Ser or Thr, X_4 is Lys, Glu, Ser or Arg, X_5 is Val or Ile, and X_3 is any amino acid, wherein the peptide inhibits the activity of at least one native chemokine, or a method of using such a peptide. Hence, withdrawal of the § 102(b) rejection of the claims is respectfully requested.

The 35 U.S.C. § 112, First Paragraph, Rejection

The Examiner rejected claims 17, 20, 22, 34, 41-44, and 52-62 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of preventing dermal inflammation or asthma using CRD-$Leu_4Ile_{11}Cys_{13}$peptide 3(3-12)[MCP-1], allegedly does not reasonably provide enablement for a method of preventing dermal inflammation or asthma using any peptide of a chemokine, a variant or a derivative thereof. This rejection, as it may be maintained with respect to the pending claims, is respectfully traversed.

In particular, the Examiner asserts that there is no guidance provided in the specification as to which of the myriad of peptides encompassed by the claims will retain the characteristics of CRD-$Leu_4Ile_{11}Cys_{13}$peptide 3(3-12)[MCP-1], and so it is unpredictable which species will have the characteristics of CRD-$Leu_4Ile_{11}Cys_{13}$peptide 3(3-12)[MCP-1].

As amended, the claims are directed to methods which employ a chemokine peptide of no more than 30 residues, a variant or a derivative thereof, wherein the peptide

comprises residues X_1-Asp-Pro-X_2-X_3-X_4-Trp-X_5-Gln or

consists of X_2-X_3-X_4 or Trp-X_5-Gln,

wherein X_1 is Ala or Leu, X_2 is Lys, Ser or Thr, X_4 is Lys, Glu, Ser or Arg, X_5 is Val or Ile, and X_3 is any amino acid,

and wherein the peptide inhibits the response induced by at least one native chemokine.

To support the position that the activity of a substituted peptide is unpredictable, the Examiner points to Mikayama et al. (Proc. Natl. Acad. Sci. U.S.A., 90, 10056 (1993)) and Voet et al. (Biochemistry, John Wiley & Sons, Inc., pp. 126-128 and 228-234 (1991)). Mikayama et al. relate that human macrophage inhibition factor (hMIF) and murine glycosylation inhibiting factor (mGIF) differ by a single amino acid and that the recombinant forms thereof appear to have distinct activities. Voet et al. review the molecular bases for hemoglobinopathies, i.e., amino acid substitutions in globin.

Regardless, neither Mikayama et al. nor Voet et al. evidence that the activity of Applicant's peptides is unpredictable.

With respect to the predictability of the activity of the claimed chemokine peptides, the Examiner is respectfully requested to consider the guidance in Applicant's specification. For example, page 106 of the specification shows ED_{50} data for four chemokines (MCP-1, MIP1α, IL8 and SDF-1α) and selected peptides, which include variants of a MCP-1 chemokine peptide. One of the variant peptides is designated $Leu_4Ser_7Ile_{11}$peptide3(1-12)[MCP-1] and has amino acid substitutions at positions 4, 7 and 11 relative to the sequence of a 12 amino acid peptide of human MCP-1 designated peptide 3(1-12)[MCP-1], another variant designated $Leu_4Ile_{11}Cys_{13}$ peptide3(1-12)MCP-1 has amino acid substitutions at positions 4, 11 and 13, and another variant, referred to as $Ser_7Glu_8Glu_9$peptide3(1-12)[MCP-1], has substitutions at positions 7, 8 and 9 relative to peptide 3(1-12)[MCP-1]. Other exemplary variant peptides of MCP-1 are Leu_4peptide3(1-12)[MCP-1], Ser_7peptide 3(1-12)[MCP-1], Ile_{11}peptide 3(1-12)[MCP-1], and Leu_4Ile_{11}peptide 3(1-12)[MCP-1] (see Table 5). The activities of these variants are shown in Table 6. Based on this data and a comparison of the carboxy-terminus of various chemokines, it is disclosed that certain residues play a role in receptor specificity (page 137, lines 19-20) and others in CC or CXC selectivity (page 138, lines 13-15), while yet others are highly conserved (page 135, lines 22-25). Table 8 provides additional evidence that substitutions in the recited chemokine peptides result in variant peptides that inhibit the response of the native chemokine.

Thus, contrary to the Examiner's assertions, Applicant's specification provides more than adequate guidance regarding the characteristics of the peptides of the invention. Given that the Examiner has conceded that Applicant has provided methods to identify peptides that fall within the scope of the claims (page 4 of the Office Action), and that Applicant has provided detailed disclosure regarding the use of the claimed peptides (see, for example, page 18, lines 9-10, page 47, line 1-page 50, line 14, and page 98, line 5-page 110, line 3), Applicant has enabled the claimed invention.

In view of the amendments and remarks above, it is respectfully submitted that the pending claims are in conformance with the requirements of 35 U.S.C. § 112, first paragraph. Therefore, withdrawal of the § 112(1) rejection of the claims is respectfully requested.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney 612- 373-6959 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Box AF, Commissioner of Patents, Washington, D.C. 20231, on this 9 day of November, 2001.

Name _____ Signature _____